[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [66 FR 21083 4/27/2001]

[Docket No. 2001-NE-09; Amendment 39-12212; AD 2001-09-07]

RIN 2120-AA64

Airworthiness Directives; Pratt and Whitney PW4000 Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule, request for comments.

SUMMARY: This amendment supersedes an emergency airworthiness directive (AD) 2001-08-52 that was sent previously to all known U.S. owners and operators of Pratt and Whitney (PW) model PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines by individual letters. That emergency AD requires limiting the number of PW4000 engines, listed by serial number (SN) in that AD, with potentially reduced stability to no more than one engine on each airplane; removal of certain PW4000 engines, listed by SN in this AD, before exceeding cyclic limits that are determined by airplane model; removal of certain PW4000 engines, listed by SN in this AD, that have a high pressure compressor with 1,500 or more cycles-since-overhaul (CSO) greater than the high pressure turbine (HPT) CSO; and requires a minimum rebuild standard for engines that are returned to service. This amendment supersedes emergency AD 2001-08-52 to provide clarifications and additions to the compliance and applicability of certain paragraphs of AD 2001-08-52. This AD is prompted by a report of a dual-engine surge event during take-off on an Airbus Industrie A300 airplane. The actions specified by this AD are intended to prevent multiple-engine power losses due to high pressure compressor (HPC) surge at a critical phase of flight such as takeoff or climb.

DATES: Effective May 14, 2001.

Comments for inclusion in the Rules Docket must be received on or before June 26, 2001.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2001-NE-09-AD, 12 New England Executive Park, Burlington, MA 01803-5299. Comments may also be sent via the Internet using the following address: "9-ane-adcomment@faa.gov." Comments sent via the Internet must contain the docket number in the subject line.

FOR FURTHER INFORMATION CONTACT: Peter White, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7128; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: On April 13, 2001, the Federal Aviation Administration (FAA) issued emergency AD 2001-08-52, applicable to PW model PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines, which requires:

- Limiting the number of PW4000 engines, listed by serial number (SN) in that AD, to no more than one engine with potentially reduced stability on each airplane within 10 cycles after receipt of that AD. AND
- Removal of certain PW4000 engines, listed by SN in that AD, before exceeding cyclic limits that are determined by airplane model, or within 100 cycles-in-service (CIS) after the receipt of that AD whichever occurs later. AND
- Removal of certain PW4000 engines, listed by SN in that AD, within 100 cycles after the receipt of that AD, that have an HPC with 1,500 or more CSO greater than the HPT CSO. AND
- A minimum rebuild standard for engines that are returned to service.

Since AD 2001-08-52 was issued, the FAA has reevaluated those requirements, and found that the requirements of that AD need to be clarified and changed to meet the original safety intent of the emergency AD. This amendment supersedes emergency AD 2001-08-52 to provide clarifications and additions to the compliance and applicability of certain paragraphs of AD 2001-08-52. Significant changes to AD 2001-08-52 include:

- Minor modifications made to engine serial number listings in Table 1 and Table 2 of this AD.
- Adding engines with the HPC Cutback Stator (CBS) configuration to the installation restrictions of paragraph (c), to be consistent with the installation restrictions of paragraph (b) of this AD.
- Editing paragraph (f) to clarify applicability to all PW4000 series engines defined in the applicability section.
- Modifying paragraph (g) to clarify applicability, and to specifically require an HPC overhaul.
- Modifying paragraph (h) to alter applicability to Table 2 engines only, and to clarify applicability.
- Adding paragraph (i) to clarify requirements for all PW4000 engines included in the applicability section of this AD.
- Clarifying the elimination of installation restrictions in paragraphs (g) and (h).

FAA's Determination of an Unsafe Condition and Proposed Actions

Since the unsafe condition described is likely to exist or develop on other PW4000 series turbofan engines of the same type design, this AD is being issued to prevent multiple-engine power losses due to high pressure compressor (HPC) surge at a critical phase of flight such as takeoff or climb. This AD requires:

- Limiting the number of PW4000 engines listed by serial number (SN) in this AD, to no more than one engine with potentially reduced stability on each airplane within 10 cycles after effective date of this AD. AND
- Removal of certain PW4000 engines, listed by SN in this AD, before exceeding cyclic limits that are determined by airplane model, or within 100 cycles-in-service (CIS) after the effective date of this AD whichever occurs later. AND
- Removal of certain PW4000 engines, listed by SN in this AD, within 100 cycles after the effective date of this AD, that have an HPC with 1,500 or more CSO greater than the HPT CSO. AND
- A minimum rebuild standard for engines that are returned to service.

Immediate Adoption of This AD

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified under the caption "ADDRESSES." All

communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2001-NE-09-AD." The postcard will be date stamped and returned to the commenter.

Regulatory Impact

This final rule does not have federalism implications, as defined in Executive Order 13132, because it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Accordingly, the FAA has not consulted with state authorities prior to publication of this final rule.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and is not a “significant regulatory action” under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "av-info.faa.gov"

2001-09-07: Pratt and Whitney Amendment 39-12212. Docket 2001-NE-09-AD.

Applicability:

This airworthiness directive (AD) is applicable to Pratt and Whitney (PW) model PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines. These engines are installed on, but not limited to, certain models of Boeing 747, Boeing 767, Airbus Industrie A300, Airbus Industrie A310, and McDonnell Douglas MD-11 series airplanes.

Note 1: This AD applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (k) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance:

Compliance with this AD is required as indicated, unless already done.

To prevent multiple-engine power losses due to high pressure compressor (HPC) surge at a critical phase of flight such as takeoff or climb, do the following:

(a) Within 10 cycles-in-service (CIS) after the effective date of this AD, limit the number of engines listed by SN in the following Table 1 of this AD, to no more than one per airplane:

Table 1. Suspected High Surge Rate Engines

723845, 723934, 723936, 723962, 723966, 723967, 723969, 724012, 724013, 724016, 724030, 724040, 724041, 724045, 724057, 724073, 724115, 724137, 724153, 724175, 724195, 724196, 724198, 724200, 724351, 724383, 724501, 724612, 724615, 724616, 724625, 724629, 724689, 724808, 724827, 724829, 724830, 724833, 724837, 724838, 724848, 724855, 724857, 724858, 727316, 727317

(b) Engines that are removed in accordance with paragraph (a) of this AD may be installed on an airplane if ALL of the following conditions are met:

(1) That airplane does not have any engines with a SN that is listed in Table 1 or Table 2 of this AD. AND

(2) The installed engines meet the requirements of paragraphs (d) and (e) of this AD. AND

(3) The airplane does not have any engines that incorporate the HPC Cutback Stator (CBS) configuration, which has been incorporated as specified by the following PW service bulletins (SB's) or earlier revisions: PW4ENG 72-706, Revision 3, dated July 17, 2000; PW4ENG 72-711, dated June 13, 2000; or PW4ENG 72-704, dated July 17, 2000.

(c) After the effective date of this AD, do not install an engine with a SN that is listed in the following Table 2 of this AD, or an engine incorporating the HPC CBS configuration as defined in (b)(3) of this AD, on an airplane that has an engine with a SN that is listed in Table 1 of this AD:

Table 2. Engines Restricted from Installation with Suspected High Surge Rate Engines

717508, 717710CN, 723859, 723863, 723938, 723963, 724022, 724024, 724050, 724054, 724080, 724099, 724173, 724179, 724184, 724191, 724205, 724385, 724386, 724479, 724509, 724566, 724690, 724847, 724861, 724864, 724870, 724882, 724883, 724893, 727365, 727395, 727421, 727426, 727462, 727478, 727496, 727500, 727502, 727506, 727521, 727535, 727536, 727537, 727540, 727543, 727617, 727619, 727747, 733701

(d) Remove engines listed by SN in Table 1 of this AD within 100 CIS after the effective date of this AD, or before exceeding the cyclic limits listed in the following Table 3 of this AD, whichever occurs later:

Table 3. High Pressure Compressor Cycle Limits by Airplane

Airplane	High Pressure Compressor (HPC) Cycles
(1) Boeing 767 and 747.	2,500 cycles-since-overhaul (CSO).
(2) McDonnell Douglas MD-11.	2,500 CSO.
(3) Airbus A300 and A310.	2,000 CSO.

(e) Within 100 CIS after the effective date of this AD, remove engines listed by SN in Table 1 of this AD that have an HPC with 1,500 or more CSO greater than the CSO of the HPT.

(f) For any engine listed in the applicability of this AD, that is inducted into the shop that results in separation of the HPC and HPT modules after the effective date of this AD, do not install any HPC or HPT modules where the CSO of the HPC will be 1,500 or more cycles greater than the CSO of the HPT.

(g) When engines listed by SN in Table 1 of this AD are removed from service in accordance with paragraphs (a), (d), or (e) of this AD, they may be returned to service after the accomplishment of an HPC overhaul and meeting the requirements of paragraph (h)(1) or (h)(2) of this AD without the installation limitations of paragraphs (a), (b), (c) and (d) of this AD.

(h) After the effective date of this AD, an engine listed by SN in Table 2 of this AD, that has HPC cycles since overhaul greater than those shown in Table 3 of this AD, or that has an HPC with 1,500 or more CSO greater than the CSO of the HPT may be returned to service without the limitations of paragraph (c) of this AD after an HPC overhaul is performed and EITHER of the following have been done:

(1) The HPC and HPT have been modified by the following PW SB's, or earlier revisions: PW4ENG 72-484, Revision 3, dated July 1, 1997; PW4ENG 72-486, Revision 2, dated April 28, 1998; PW4ENG 72-575, Revision 2, dated July 29, 1998; and PW4ENG 72-514, Revision 3, dated August 10, 1999; OR

(2) The engine has been converted to the Phase III configuration by the following PW SB's or earlier revisions: PW4ENG 72-490, Revision 1, dated August 2, 1994; or PW4ENG 72-504, Revision 1, dated May 9, 1995; or PW4ENG 72-572, dated June 16, 1995.

(i) Any engine listed in the applicability of this AD inducted into the shop for HPC overhaul after the effective date of this AD must meet the requirements of paragraphs (h)(1) or (h)(2) of this AD before return to service.

Definitions

(j) For the purposes of this AD, the following definitions apply:

(1) An HPC overhaul is defined as restoration of the HPC stages 5 through 15 blade tip clearances to the limits specified in the applicable fits and clearances section of the engine manual.

(2) An HPT overhaul is defined as restoration of the HPT module stage 1 and 2 blade tip clearances to the limits specified in the applicable fits and clearances section of the engine manual.

Alternative Methods of Compliance

(k) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Engine Certification Office (ECO). Operators shall submit their requests through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, ECO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the ECO.

Special Flight Permits

(l) Special flight permits may be issued in accordance with §§ 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Effective Date

(m) This amendment becomes effective May 14, 2001.

FOR FURTHER INFORMATION CONTACT: Peter White, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7128; fax (781) 238-7199.

Issued in Burlington, Massachusetts on April 20, 2001.

Francis A. Favara, Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.